

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 34

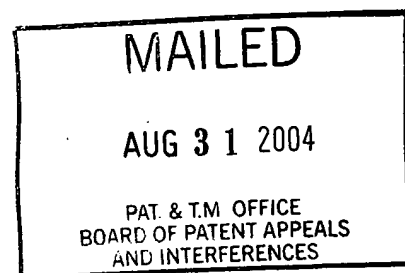
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MIGAKU TAKAHASHI

Appeal No. 2004-1918
Application No. 09/268,948

ON BRIEF



Before KIMLIN, WALTZ, and DELMENDO, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 1, 10 and 12. Claims 2, 11 and 13 are the only other claims pending in this application and stand allowed by the examiner (Brief, page 2). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellant, the invention is directed to a magnetic thin film including iron nitride having a nitrogen martensite α' phase with α (002) surface formed on a substrate, where the thin film is produced in a manner so as to permit

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diffraction rays from a γ' phase to be observed while the α' phase has diffraction rays observed from only the α (002) surface (Brief, page 2). Appellant states that the rejected claims stand or fall together (Brief, page 3). Therefore, pursuant to the provisions of 37 CFR § 1.192(c)(7)(2000), we select independent claim 1 from the grouping and decide the ground of rejection in this appeal on the basis of this claim alone. Representative independent claim 1 is reproduced below:

1. A magnetic thin film comprising:

an iron nitride thin film having a nitrogen martensite α' phase with α (002) surface formed on a substrate, said iron nitride thin film being produced on the substrate in a manner so as to permit diffraction rays from a γ' phase to be observed, said α' phase having diffraction rays observed from only said α (002) surface.

The examiner has relied upon the following reference as support for the rejection on appeal:

Takahashi et al. (Takahashi), "SYNTHESIS OF Fe_{16}N_2 FILMS BY USING REACTIVE PLASMA," *IEEE Transactions on Magnetics*, pp. 3040-3045, Vol. 29, Issue 6, November 1993.

Claims 1, 10 and 12 stand rejected under 35 U.S.C. § 102(b) as anticipated by Takahashi (Answer, page 3). We *affirm* the examiner's rejection essentially for the reasons stated in the Answer and for those reasons set forth below.

OPINION

The examiner finds that Takahashi discloses forming an iron nitride film onto a MgO substrate film using a facing (otherwise understood as opposing) target type DC sputtering apparatus (Answer, page 3, citing Takahashi, page 3040, second column, and page 3041, first column). The examiner further finds that Takahashi teaches a process for forming the iron nitride film under plasma conditions identical to those disclosed and claimed by appellant, resulting in an iron nitride sputtered film where only the diffracted line of (002) from α' is observed (*id.*, citing Takahashi, page 3041, second column).¹ Finally, the examiner finds that Figures 1 and 4 of Takahashi teach sputtering in a nitrogen flow rate of 25% (Answer, page 4). From these findings, the examiner states that since the iron nitride film is formed by the same method under the same plasma conditions, the film formed will inherently have the same properties, including the claimed observation of diffraction rays from a γ' phase (*id.*).

¹The examiner notes that appellant abbreviates the martensite α' (002) phase to " α (002)," citing the specification at page 8, ll. 1-5 (Answer, page 3). Since appellant does not contest this finding (see the Brief and Reply Brief in their entirety), we construe these terms as interchangeable as recited in claim 1 on appeal.

Appellant argues that Takahashi does not disclose or suggest the general co-existence of α' and γ' phases in an iron nitride film, as required by claim 1 on appeal (Brief, page 3). This argument is not well taken. As correctly noted by the examiner (Answer, page 4), appellant acknowledges that Takahashi discloses the appearance of a γ' phase occurring around 250 °C. and appellant concedes that "one of ordinary skill in the art would expect α' and γ' phases to coexist, under equilibrium conditions, only at 250°C within the thin films disclosed by Takahashi" (Brief, page 4; Reply Brief, page 2). Therefore, at or around 250°C., the iron nitride thin film disclosed by Takahashi meets every limitation recited in claim 1 on appeal.² See *Exxon Chemical Patents Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1558, 35 USPQ2d 1801, 1804-05 (Fed. Cir. 1995) (claims to a composition may read on a prior art composition at any point in time).

Appellant argues that the examiner's finding that the process conditions are the same in Takahashi and this application is incorrect (Brief, pages 4-7; Reply Brief, page 3). This

²We note that appellant, similarly to Takahashi, discloses that the γ' phase of the iron nitride thin film is only formed using a nitrogen gas flow rate of 25% and applying a heat treatment to the film (specification, page 10, ll. 2-4; page 10, last line-page 11, l. 2).

argument is also not well taken since the examiner has correctly pointed to disclosures of process parameters taught by Takahashi that fall within the ranges of process parameters disclosed by appellant for the same type of process (Answer, pages 3-4 and 6-7).³ More specifically, Takahashi teaches an electron voltage within the range of about 0.2 eV to 0.6 eV, an electron density of about 10^9 cm^{-3} , and a nitrogen flow rate of 25%, while appellant discloses an electron voltage within the range of 0.01 to 1 eV, an electron density within the range of 1×10^9 to $1 \times 10^{10} \text{ cm}^{-3}$, and a nitrogen flow rate within the range of 8-25% (specification, page 4, ll. 3-9; see also claim 10 on appeal).

Where, as here, the examiner has found the virtual identity of the reactants and process of forming the product, including the reaction conditions, we determine that the examiner has adequately supported a *prima facie* case of unpatentability of appellant's iron nitride thin films for lack of novelty. See *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir.

³Appellant also argues that the iron underlayer of Takahashi is formed in a highly charged argon plasma while the present iron underlayer is formed in an inert argon atmosphere (Brief, page 6). The examiner correctly points out that appellant discloses formation of the iron underlayer in an argon plasma (Answer, pages 6-7). Furthermore, we note that claim 1 on appeal does not recite an iron underlayer and thus any arguments concerning this underlayer are irrelevant.

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1990). Where the examiner shows sound basis for believing that the products of the prior art and appellant are the same, appellant has the burden of showing that they are not. See *In re Spada, supra*. As a predecessor of our reviewing court has held:

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. [Citation omitted]. Whether the rejection is based on "inherency" under 35 U.S.C. § 102, on "prima facie obviousness" under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. [Citation and footnote omitted]. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

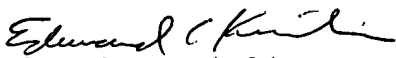
We note that appellant has not argued nor submitted any objective evidence to establish that the thin film of Takahashi is different than the claimed thin film.

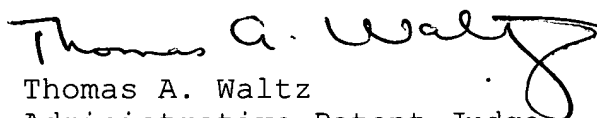
For the foregoing reasons and those stated in the Answer, we determine that the examiner has established a *prima facie* case of unpatentability under section 102(b) which has not been adequately overcome by appellant's arguments. Accordingly, we affirm the examiner's rejection of claim 1, and claims 10 and 12 which stand or fall with claim 1, under 35 U.S.C. § 102(b) over Takahashi.

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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED


Edward C. Kimlin)
Administrative Patent Judge)


Thomas A. Waltz)
Administrative Patent Judge)

BOARD OF PATENT
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Administrative Patent Judge)

TAW/tdl

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